

IN THE CLAIMS:

1. (Currently Amended) A tap adapted for formation of female screw-threads in a plurality of metal parts, each female screw-thread being capable of imparting translational motion to a threaded second member engaged therewith, the threaded second member having a matching male screw-thread and the translational motion occurring on relative rotation between the first metal part and the threaded second member, the tap being fluteless and comprising a threaded portion with a symmetrical triangular form thread, wherein the symmetrical triangular form thread has an angle of thread (α) in the range 29°- 40° and radiussed crests.
2. (Previously Presented) A tap as claimed in claim 1 wherein the angle of thread (α) is 29° to 31°.
3. (Previously Presented) A tap as claimed in claim 2 wherein the angle of thread (α) is 30°.
4. (Previously Presented) A tap as claimed in claim 1 wherein the tap has a chamfered front end.
5. (Previously Presented) A tap as claimed in claim 4 wherein the chamfered front end extends over at least four turns of the thread.
6. (Previously Presented) A tap as claimed in claim 4 wherein the chamfered front end has a chamfer angle (β) in the range 5.5° to 6.5°.

7. (Previously Presented) A tap as claimed in claim 1 which has at least two starts.
8. (Previously Presented) A tap as claimed in claim 1 wherein the radiussed crests have a radius of curvature in the range of 0.165 to 0.175 mm.
9. (Previously Presented) A tap as claimed in claim 1 wherein the roots of the threaded portion of the tap are radiussed.
10. (Previously Presented) A tap as claimed in claim 9 when the radiussed roots have a radius of curvature in the range 0.178 mm to 0.188 mm.
11. (Previously Presented) A tap as claimed in claim 1 wherein the thread has a pitch of 0.995 mm to 1.005 mm.
12. (Previously Presented) A tap as claimed in claim 1 comprising additionally lubrication grooves.
13. (Previously Presented) A tap as claimed in claim 1 comprising a shank portion extending rearwardly from the threaded portion and a rearmost portion with a plurality of flat surfaces to enable engagement of the tap by a chuck.

14. (Previously Presented) A tap as claimed in claim 13 in which at least one of the flat surfaces is precision machined in order to precisely set a distance between the front of the tap and at least one end of the flat surface.
15. (Currently Amended) A product having a tapped bore with a female screw-thread flow formed using the tap a fluteless tap comprising a threaded portion with a symmetrical triangular form thread, wherein the symmetrical triangular form thread has an angle of thread in the range 29°-40° and radiussed crests, ~~claimed in claim 1.~~
16. (Currently Amended) A method of tapping a product comprising the steps of: in which a female screw thread is formed using a tap as claimed in claim 1.
forming a fluteless tap comprising a threaded portion with a symmetrical triangular form thread, wherein the symmetrical triangular form thread has an angle of thread in the range 29°-40° and radiussed crests;
flow forming a female screw thread using the fluteless tap.
17. (Currently Amended) A method of manufacture ~~and use~~ of apparatus which has a first metal object with a female screw-thread and a second metal object with a matching male screw-thread, the method comprising the steps of:
forming a fluteless tap comprising a threaded portion with a symmetrical triangular form thread, wherein the symmetrical triangular form thread has an angle of thread in the range 29°-40° and radiussed crests;
forming in the first metal object a female screw-thread using the fluteless tap; a tap as claimed in claim 1;

forming on at least a part of the second metal object a male screw-thread matching the female screw-thread of the first metal object;

engaging the male screw-thread of the second metal object with the female screw-thread of the first metal object, and

rotating one of the first and second metal objects relative to the other in order to occasion translational motion of the second metal object relative to the first metal object.

18. (Currently Amended) A tap adapted for formation of female screw-threads in a plurality of metal parts, each female screw-thread being capable of imparting translational motion to a threaded second member engaged therewith, the threaded second member having a matching male screw-thread and the translational motion occurring on relative rotation between the first metal part and the threaded second member, the tap being fluteless and comprising a threaded portion with a symmetrical triangular form thread, wherein the symmetrical triangular form thread has an angle of thread in the range 29°- 40° and radiussed crests and the tap has a chamfered front end.
19. (Previously Presented) A tap as claimed in claim 18 wherein the chamfered front end extends over at least four turns of the thread.

20. (Currently Amended) A tap adapted for formation of female screw-threads in a plurality of metal parts, each female screw-thread being capable of imparting translational motion to a threaded second member engaged therewith, the threaded second member having a matching male screw-thread and the translational motion occurring on relative rotation between the first metal part and the threaded second member, the tap being fluteless and comprising a threaded portion with a symmetrical triangular form thread and at least two starts, wherein the symmetrical triangular form thread has an angle of thread in the range 29°- 40° and radiussed crests.